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| 09/801,063 | 03/07/2001 | Thomas Klein | BARCO-019-1 | 2204 |

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| EXAMINER | |
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| ART UNIT | PAPER NUMBER |
|---|---|
| 2626 | |

DATE MAILED: 10/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/801,063 | KLEIN ET AL. | |
| | Examiner | Art Unit | |
| | Tia A Carter | 2626 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,7,11-13,17,19-24,30-35 and 38-42* is/are rejected.

7)☒ Claim(s) *4-6,8-10,14-16,18,25-29,36 and 37* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3, 6, 8*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-3, 7, 11-13, 17, 19-24, 30-35, and 38-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Klein et al. (US. 6120951) in view of Applicant's admitted prior art (application 09/801063).

Regarding claim 1, Klein et al. discloses an apparatus for imaging a flexo sleeve comprising:

A laser beam source (6) (fig. 3, col. 9, line 32), and

A modulator (AOM 17) to modulate the laser beam of the laser beam source according to image data (figs. 5-6, col. 11, lines 6-15);

A fast scan motion actuator to rotate the drum relative to the one or more laser beams (fig. 5-6, col. 10, lines 61-66);

A controller receiving the image data and coupled to each modulator, the fast scan motion actuator, and the slow scan motion actuator (figs. 5-6, col. 10, lines 54-66),

Wherein the controller couples image data to each modulator and compensates for artifacts at the seam while exposing the flexo sleeve at a speed substantially the same as conventional spiral advance imaging with no seam compensation (figs. 5-6, col. 10, lines 54-67; col. 11, lines 1-17 and col. 9, lines 29-36).

Klein et al. **do not disclose** a flexo sleeve(100) mounted on a rotatable drum, the drum and sleeve combination having a seam at a seam location.

Admitted prior art **disclose** a flexo sleeve(100) mounted on a rotatable drum, the drum and sleeve combination having a seam at a seam location (figs. 1a-e, pg. 2, lines 12-15 and pg. 3, lines 25-28);

Klein et al. **do not disclose** a laser output scanner oriented to direct one or more imaging laser beam to the surface of the flex sleeve at one or more corresponding focal spots, the laser output scanner including for each laser beam.

Admitted prior art **disclose** a laser output scanner oriented to direct one or more imaging laser beam to the surface of the flex sleeve at one or more corresponding focal spots, the laser output scanner including for each laser beam ( fig. 1-2, pg. 2, lines 10-15 and pg. 3, lines 25-28);

Klein **do not disclose** a slow scan motion actuator to provide relative motion between the focal points of the one or more laser beams and the sleeve surface in a slow scan direction parallel to the axis of rotation of the drum

Admitted prior art **disclose** a slow scan motion actuator to provide relative motion between the focal points of the one or more laser beams and the sleeve

surface in a slow scan direction parallel to the axis of rotation of the drum (fig. 1a, pg. 2, lines 15-17 and 20-27);

It would have been obvious to one skilled in the art at the time of the invention to modify Klein et al. wherein explicit details regarding the processes of the laser beam and flexo sleeve would be implemented to provide a user trial and error capabilities when uses this process.

Regarding claim 2, Klein et al. discloses an apparatus as recited in claim 1, wherein the image data is screened using a screen that diminishes the visibility of artifacts at the seam (fig. 1, col. 9, lines 46-67 and col. 10, lines 1-37).

Regarding claim 3, Klein et al. discloses an apparatus as recited in claim 2, wherein the screen avoids dot positioning at the seam location (fig. 1, col. 10, lines 29-37).

Regarding claim 7, Klein et al. discloses an apparatus as recited in claim 1, wherein the laser output scanner includes for each beam a deflector for deflecting the laser beam, the deflector to deflect the focus spot of its beam in the slow scan direction while the focus spot moves in fast scan direction (figs. 5-6, col. 10, lines 54-67 and col. 11, lines 1-4).

Regarding claim 11, Klein et al. discloses an apparatus as recited in claim 7, wherein the deflector includes an acousto-optical device ( fig. 5-6, col. 10, line 60).

Regarding claim 12, Klein et al. discloses an apparatus as recited in claim 7, wherein the deflector includes a piezo- electric mirror ( fig. 5-6, col. 10, line 38-39).

Regarding claim 13, Klein et al. discloses an apparatus as recited in claim 11, wherein the modulator uses the same acousto-optical device as the deflector (fig. 5-6, col. 10, lines 59-60).

Regarding claim 17, Klein et al. discloses an apparatus for imaging a flexo sleeve comprising:

A laser beam source (6) (fig. 3, col. 9, line 32), and

A modulator (AOM 17) to modulate the laser beam of the laser beam source according to image data (figs. 5-6, col. 11, lines 6-15);

A fast scan motion actuator to rotate the drum relative to the one or more laser beams (fig. 5-6, col. 10, lines 61-66);

A slow scan motion actuator to provide relative motion between the focal points of the one or more laser beams and the sleeve surface in a slow scan direction parallel to the axis of rotation of the drum (fig. 1a, pg. 2, lines 15-17 and 20-27);

A controller (10) receiving the image data and coupled to each modulator, the fast scan motion actuator, and the slow scan motion actuator (figs. 5-6, col. 10, lines 54-66),

Wherein the controller couples image data to each modulator and causes each of the deflectors to deflect its focus spot in the slow scan direction while the focus spot moves in fast scan direction (figs. 5-6, col. 10, lines 54-66).

Klein et al. **do not disclose** a flexo sleeve mounted on a rotatable drum, the drum and sleeve combination having a seam at a seam location

Admitted prior art **discloses** a flexo sleeve mounted on a rotatable drum, the drum and sleeve combination having a seam at a seam location (figs. 1a-e, pg. 2, lines 12-15 and pg. 3, lines 25-28);

Klein et al. **do not disclose** a laser output scanner oriented to direct one or more imaging laser beam to the surface of the flex sleeve at one or more corresponding focal spots, the laser output scanner including for each leaser beam.

Admitted prior art **discloses** a laser output scanner oriented to direct one or more imaging laser beam to the surface of the flex sleeve at one or more corresponding focal spots, the laser output scanner including for each leaser beam (fig. 1-2, pg. 2, lines 10-15 and pg. 3, lines 25-28);

It would have been obvious to one skilled in the art at the time of the invention to modify Klein et al. wherein explicit details regarding the processes of the laser beam and flexo sleeve would be implemented to provide a user trial and error capabilities when uses this process.

Regarding claim 19, Klein et al. discloses an apparatus as recited in claim 7, wherein the deflector includes an acousto-optical device (figs. 5-6, col. 10, line 60).

Regarding claim 20, Klein et al. discloses an apparatus as recited in claim 17, wherein the deflector includes a piezo-electric mirror (figs. 5-6, col. 11, lines 38-39).

Regarding claim 21, Klein et al. discloses an apparatus as recited in claim 17, wherein the image data is screened using a screen, and wherein the controller causes each deflector to displace the pixels of the screen in the slow scan direction by an amount dependent on the fast scan distance such that imaging with a spiral advance substantially corrects the screens for spiral advance to diminish the visibility of artifacts at the seam (Figs. 2, 5-6, col. 9, lines 29-67).

Regarding claim 22, Klein et al. discloses an apparatus as recited in claim 21, wherein the screen is a screen designed to avoid placing dots at the seam (Fig. 4, col. 10, lines 10-13).

Regarding claim 23, Klein et al. discloses an apparatus for imaging a flexo sleeve comprising:

A laser beam source (6) (fig. 3, col. 9, line 32), and

A modulator (AOM 17) to modulate the laser beam of the laser beam source according to image data (figs. 5-6, col. 11, lines 6-15);

A fast scan motion actuator to rotate the drum relative to the one or more laser beams (fig. 5-6, col. 10, lines 61-66);

A slow scan motion actuator to provide relative motion between the focal points of the one or more laser beams and the sleeve surface in a slow scan direction parallel to the axis of rotation of the drum (fig. 1a, pg. 2, lines 15-17 and 20-27);

A controller (electric circuit 16) receiving the image data and coupled to each modulator, the fast scan motion actuator, and the slow scan motion actuator (figs. 5-6, col. 10, lines 54-66),

Wherein the controller couples image data to the modulator, controls a complete rotation of the drum while suppressing motion in the slow scan direction, the rotation causing the one or more beams to write one or more tracks according to image data, the controller further causes the beams to advance in the slow scan direction to the next set of tracks positions while imaging is suppressed, the controller further commencing imaging at said next set of tracks when the advance in the slow track direction is complete, the controller further cyclically shifting the imaging data for the next set of tracks by an amount corresponding to the drum rotation that occurs during the advance in the slow scan direction, such that the imaging data is correctly written onto the next set of tracks (fig. 2, col. 6, lines 10-38).

Klein et al. **do not discloses** a flexo sleeve mounted on a rotatable drum, the drum and sleeve combination having a seam at a seam location

Admitted prior art **discloses** a flexo sleeve mounted on a rotatable drum, the drum and sleeve combination having a seam at a seam location (figs. 1a-e, pg. 2, lines 12-15 and pg. 3, lines 25-28);

Klein et al. **do not disclose** a laser output scanner oriented to direct one or more imaging laser beam to the surface of the flex sleeve at one or more corresponding focal spots, the laser output scanner including for each leaser beam

Admitted prior art **discloses** a laser output scanner oriented to direct one or more imaging laser beam to the surface of the flex sleeve at one or more corresponding focal spots, the laser output scanner including for each leaser beam (pg. 2, lines 10-15 and pg. 3, lines25-28);

It would have been obvious to one skilled in the art at the time of the invention to modify Klein et al. wherein explicit details regarding the processes of the laser beam and flexo sleeve would be implemented to provide a user trial and error capabilities when uses this process.

Regarding claim 24, Klein et al. discloses a method of seamlessly exposing a digital flexo sleeve, comprising the steps of:

Exposing one or more image tracks on the digital flexo sleeve with one or more laser beams moving in a fast scan direction and modulated according to image data (fig. 4, col. 5, lines 27-49 and col. 6, lines 27-31);

Advancing the laser beams in a slow scan direction (fig. 4, col. 9, lines 29-36); and

Compensating for any spiral advance such that artifacts at any seam locations at the sleeve are substantially diminished (fig. 4, col. 9, lines 45-67).

Admitted prior at **discloses** loading a digital flexo sleeve having a sleeve surface in a laser imagesetter device (fig. 1a, pg. 2, lines 9-15);

Klein et al. **do not disclose** loading a digital flexo sleeve having a sleeve surface in a laser imagesetter device.

It would have been obvious to one skilled in the art at the time of the invention to modify Klein et al. wherein explicit details regarding the processes of the laser beam and flexo sleeve would be implemented to provide a user trial and error capabilities when uses this process.

Regarding claim 30, Klein et al. discloses a method of seamlessly exposing a digital flexo sleeve, comprising the steps of:

Exposing one or more image tracks on the digital flexo sleeve with one or more laser beams moving in a fast scan direction and modulated according to image data, the moving in the fast scan direction being by rotation of the sleeve relative to the beams while simultaneously advancing the laser beams in a slow scan direction (fig. 2, col. 5, lines 60-67 and col. 6, lines 1-9 and lines 32-45); and

Simultaneously deflecting the laser beams in the slow scan direction in a direction opposite the slow scan advance by an amount dependent on the fast

scan distance, while the laser beams move in the fast scan direction on the sleeve surface, such that the spiral advance in the slow scan direction and simultaneous rotational moving in the fast scan direction is compensated (figs. 5-6, col. 11, lines 39-57.

Klein et al. **do not disclose** loading a digital flexo sleeve in a laser imagesetter device.

Admitted prior art **discloses** loading a digital flexo sleeve in a laser imagesetter device (fig. 1a, pg. 2, lines 9-15);

It would have been obvious to one skilled in the art at the time of the invention to modify Klein et al. wherein explicit details regarding the processes of the laser beam and flexo sleeve would be implemented to provide a user trial and error capabilities when uses this process.

Regarding claim 31, Klein et al. discloses a method as recited in claim 30, wherein the wherein the motion in the fast scan direction is caused by rotation of the flexo sleeve (figs. 5-6, col. 10, lines 54-66).

Regarding claim 32, Klein et al. discloses a method of claim 31, wherein the exposing starts when the sleeve is at a starting position, the method further comprising:

Resetting the deflection of the one or more laser beam to zero when the sleeve has returned to the starting position (fig. 2, col. 6, lines 37-39 and col. 11, lines 26-27).

Regarding claim 33, Klein et al. discloses a method as recited in claim 32, wherein the deflection of the one or more laser beams is carried out by applying frequency chirps to one or more acousto-optical device (fig. 5-6, col. 11, lines 13-29).

Regarding claim 34, Klein et al. discloses a method as recited in claim 30, wherein the deflection of the one or more laser beams is carried out by one or more piezo-electric mirrors (figs. 5-6, col. 11, lines 38-39).

Regarding claim 35, Klein et al. discloses a method of seamlessly exposing a digital flexo sleeve, the method comprising the steps of:

Exposing a first image track on the digital flexo sleeve with a laser beam modulated according to the image data (fig. 4, col. 5, lines 27-49 and col. 6, lines 27-31);

Interrupting the laser beam (col. 11, lines 26-27);

Advancing the laser beam to a second image track in a block advance in a slow scan direction, wherein the block advance requires less than a full revolution of the flexo sleeve (fig. 4, col. 9, lines 29-36); and

Starting an exposure of the second image track immediately upon completion of the block advance (fig. 2, col. 6, lines 30-31).

Klein et al. do not **disclose** loading a digital flexo sleeve in a laser imagesettter device.

Admitted prior art **discloses** loading a digital flexo sleeve in a laser imagesettter device (fig. 1a, pg. 2, lines 9-15);

It would have been obvious to one skilled in the art at the time of the invention to modify Klein et al. wherein explicit details regarding the processes of the laser beam and flexo sleeve would be implemented to provide a user trial and error capabilities when uses this process.

Regarding claim 38, Klein et al. discloses an a method of seamlessly exposing a digital flexo sleeve with a halftone image (fig. 4, col. 5, lines 27-49 and col. 6, lines 27-31), the method comprising steps of:

Displacing pixel data for a plurality of pixels, wherein the plurality of pixels are located adjacent to a seam on a digital flexo sleeve (fig. 4, col. 8, lines 54-67 and col. 91-20);

Transferring the halftone image to the digital flexo sleeve (fig. 4, col. 9, lines 44-55).

Klein et al. **do not** disclose loading a digital flexo sleeve in an imagesetter device.

Admitted prior art **disclose** loading the digital flexo sleeve in an image setter device (fig. 1a, pg. 2, lines 9-15).

It would have been obvious to one skilled in the art at the time of the invention to modify Klein et al. wherein explicit details regarding the processes of the laser beam and flexo sleeve would be implemented to provide a user trial and error capabilities when uses this process.

Regarding claim 39, Klein et al. discloses a method of seamlessly exposing a flexo sleeve having a seam location, the methods including the steps of

Raster image processing (RIPing) an image using specially designed halftone screens, so that no halftone screening dots are placed directly at the seam location (fig. 2, col. 5, lines 54-59);

Transferring an image to the flexo sleeve using a conventional spiral advance mode (fig. 4, col. 9, lines 29-55).

Klein et al. do not **disclose** loading a digital flexo sleeve in an imagesetter device.

Admitted prior art **discloses** loading a digital flexo sleeve in an imagesetter device (fig. 1a, pg. 2, lines 9-15).

It would have been obvious to one skilled in the art at the time of the invention to modify Klein et al. wherein explicit details regarding the processes of the laser beam and flexo sleeve would be implemented to provide a user trial and error capabilities when uses this process.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 40-42 are rejected under 35 U.S.C. 102(e) as being anticipated by Klein et al. (US. 6120951).

Regarding claim 40, Klein et al. discloses a method of seamlessly exposing a flexo sleeve having a seam location the exposing using an image setter that uses conventional spiral advance imaging including a slow scan direction (fig. 4, col. 5, lines 27-49 and col. 6, lines 27-31), the method including the steps of:

RIPing an image using specially designed halftone screens (fig. 2, col. 5, lines 54-59);

Introducing pixel shift in the negative of the slow scan direction into the screen to compensate for the spiral advance of an imagesetter that uses conventional spiral advance imaging mode (fig. 2, col. 6, lines 32-45).

Regarding claim 41, Klein et al. disclose a method as recited in claim 40, wherein the shift is introduced in the RIPing step (fig. 4, col. 9, lines 44-55).

Regarding claim 42, Klein et al. discloses a method as recited in claim 40, wherein the shift is introduced by on the fly displacement during imaging ((fig. 4, col. 10, lines 38-41).

***Allowable Subject Matter***

5. Claims 4-6, 8-10, 14-16, 18, 25-29, 36, and 37 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kline et al. (US. 5868075) and Kataoka et al. (US. 5402409) are cited to show related art with respect to optical imaging.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tia A Carter whose telephone number is 703 - 306-5433. The examiner can normally be reached on M-F (7:00-3:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kimberly A Williams can be reached on 703-305-4863.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tia A Carter
Examiner
Art Unit 2626

TAC
9/30/04

KIMBERLY WILLIAMS
SUPERVISORY PATENT EXAMINER